

ABSTRACT OF THE DISCLOSURE

A system and method for eliminating interconnect extrusions in vias that are formed during ionized metal plasma processing. By eliminating interconnect extrusions in vias, reliability failures and yield loss are decreased. The extrusions of interconnect metallization occur while wafers are subject to elevated temperatures that cause the internal stresses in the interconnect metallization to transit from a substantially tensile mode to a substantially compressive mode. By controlling the interconnect temperature to be below the temperature at which the interconnect transits from a tensile to a compressive mode, interconnect extrusions in vias are eliminated. The interconnect temperature is controlled by using an actively cooled pedestal in combination with a low temperature IMP deposition process. In addition, the IMP processing time may also be decreased to limit heating of the interconnect.